THE BULLETIN

Monthly News from the ENERGY STAR Buildings℠ and Green Lights® Partnership

January 4, 1999

New Bulletin Format to Better Serve Participants' Needs

In response to the needs of facility managers, communications directors, and others, ENERGY STAR Buildings and Green Lights has improved *The Bulletin* to be more useful and informative to recipients. *The Bulletin*, which will now be distributed on a monthly basis, includes more technical information and case studies in order to share successful upgrade strategies and implementation techniques. *The Bulletin* will continue to feature new participants and those with completed upgrades, as well as program news and upcoming events.

We hope that you find *The Bulletin* to be more useful in conveying ENERGY STAR Buildings news and technical information. We welcome your comments and suggestions so we can continue to improve this publication. Please e-mail your feedback to Christie Smith, *Bulletin* Editor, at: smith.christie@epamail.epa.gov, or call the ENERGY STAR Hotline at 1-888-STAR YES.

1998 Success Stories

Many ENERGY STAR Buildings and Green Lights participants implemented quality energy-efficiency upgrades in 1998. We would like to share the successes of the following participants in reducing their energy use, saving on utility costs, and improving the comfort of their facilities.

★ ENERGY STAR Buildings participant Mervyn's California, part of the Dayton Hudson family of stores, has been implementing building-wide energy-efficiency upgrades and communicating its efforts to customers, employees, and the community.

Recently completed upgrades include upgrading exit signs from incandescent to LED, replacing outdoor mercury vapor lamps to HID (MH or HPS), lowering ceiling heights to bring light sources closer to tasks, and adding economizer controls to packaged-unit fan systems. These and other energy-saving measures have enabled Mervyn's to decrease chiller sizes and initiate staged cooling in its stores with centralized HVAC systems.

In addition to these improvements, Mervyn's regularly replaces 30 to 40 HVAC systems each year (including both packaged HVAC units and central plants), constantly fine-tunes the Energy Management Systems in all stores, regularly recalibrates thermostats, and monitors kWh, kW, and temperature for energy use that exceeds the standard. Mervyn's California keeps its staff involved in its new initiatives through its internal newsletter, Team Talk.

★ SMG Properties, a world leader in the management of public assembly facilities, began to implement the ENERGY STAR Buildings five-stage upgrade approach immediately after joining the partnership in 1998.

SMG first applied the strategy to its Rhode Island Convention Center. Stage one (lighting) improvements commenced to date include upgrading incandescents and metal halides to compact fluorescent

Web Site Information

ENERGY STAR Buildings℠ and Green Lights®
www.epa.gov/buildings

ENERGY STAR® Label for Buildings
www.epa.gov/buildinglabel

Ally Services and Products (ASAP) Directory
www.epa.gov/asap

The Bulletin Home Page
www.epa.gov/appdstar/news

New Participants

We welcome the following new ENERGY STAR Buildings Allies:

Advanced Lighting, Incorporated

EDI, Ltd. Consulting Engineers

Five Star Lighting

GREENCOOL

MTI Energy Management in Lighting

New Hampshire Electric Cooperative

Sebago Energy Conservation

lamps and installing motion sensors. Stage two (building tune-up) improvements include retrofitting thermostats from manual to electronic/programmable types, and controlling facility lighting and HVAC systems through the building automation system. For stage three (other load reductions) upgrades, SMG has added photocells to exterior lighting fixture controls, utilized economizer modes for the air handling systems, and reduced boiler water temperature to 165 degrees from 180 degrees during moderate heating seasons (without sacrificing comfort).

Although the Rhode Island Convention Center is a relatively new facility and therefore has well-sized, energy-efficient motors, SMG is planning to retrofit some with variable speed drives for its stage four (fan systems) upgrades. The company is also initiating several stage five (heating and cooling plant) upgrades, including the addition of building automation system control points for steam and hot water boilers, and is considering downsizing several air-conditioning units.

★ After seeing the substantial energy savings that resulted from its Green Lights Partnership, Alexandria Public Schools (VA) was eager to continue upgrading its schools to be more energy efficient. The School District joined ENERGY STAR Buildings in 1997 after realizing more than $300,000 in annual energy cost savings from lighting upgrades.

Whole-building upgrades to Mt. Vernon Elementary and James K. Polk Elementary schools, the District's two pilot buildings, have already netted $88,000 in annual energy savings. Energy-efficient windows and a new chiller and boiler were installed at Mt. Vernon Elementary, and roofing improvements are being planned for further energy savings. At James K. Polk Elementary, the lighting was upgraded and a new, energy-efficient chiller was installed. New windows and boilers, as well as roofing, are planned in the next several years.

System-wide, Alexandria Public Schools is focusing on reducing climate control loads and upgrading the HVAC equipment. These improvements not only save money, but also provide students and teachers with a more comfortable learning environment.

★ Kaiser Foundation Healthcare's success in Green Lights led the health maintenance organization (HMO) to join ENERGY STAR Buildings in 1997. Kaiser sees energy efficiency as a strategic investment for the company, thanks in part to energy cost savings of more than $1.1 million annually, and continues to implement whole-building upgrades at a rapid pace.

At the San Francisco Medical Center, more efficient HVAC systems and a reconstructed central plant saved the HMO $120,000 in energy costs in one year. Kaiser's South San Francisco Medical Center has also been proactive in its upgrades by installing a centralized digital control system to monitor energy consumption and allocate energy based on need. The Center has also switched to natural gas generation of its electricity and heat, which saves on utility costs and reduces the carbon dioxide emissions of its energy use.

Upcoming Events

1999 Consumer Electronics Show
Jan 7-10 Las Vegas, NV

For more information, visit the CES Web page at: www.cesweb.org/, or e-mail the Electronic Industries Alliance at: cesinfo@eia.org, or call the Consumer Electronics Manufacturers Association (CEMA) at 703-907-7605.

Enlightening America '99
Feb 1-3 Dallas, TX

For more information, visit the Energy Efficient Lighting Association's (EELA) Web page at: www.eela.com or contact Lynn M. Russo at 609-799-4900.

How to Keep Your Building in Tip-Top Shape

This article is excerpted from the online Ally Services and Products (ASAP) Directory. For the complete text or other articles, please visit: www.epa.gov/asap.

Building maintenance is important for the energy-efficiency performance of your facilities, both on a regular basis and as a more thorough "building tune-up." A building tune-up, the second stage of the ENERGY STAR Buildings upgrade strategy, involves a series of simple, low- or no-cost adjustments to existing building equipment. These measures can result in an energy savings of 5 to 15 percent and have an average return on the investment of 35 percent. A building tune-up can also help prepare a building for a comprehensive energy-efficiency upgrade. To begin a building tune-up, follow these three important steps: calibrate building controls, secure the building envelope from infiltration, and test all building systems.

Once building controls are calibrated as they were intended, you can begin evaluating which systems in your building need to be adjusted or upgraded. The first step is to calibrate indoor and outdoor building controls, such as room thermostats, duct thermostats, humidistats, and pressure and temperature sensors, to be in accordance with the original design specifications. Next, inspect damper and valve controls to make sure they are functioning properly. Check pneumatically controlled dampers for air leaks and ensure that they open and close properly. Except for buildings with heat pumps, another energy saving measure is to turn temperature controls down at night in the winter and up in the summer to avoid unnecessary heating or cooling losses. And, if applicable, make sure that your cooling tower and humidity-based air economizers are working properly at start up.

By reducing air infiltration into and from the building envelope, you can enhance occupant comfort and reduce heating or cooling errant air. Tighten the building by locating all air leaks in the windows, doors, walls, and roofs. Indications of air leaks are drafts near doors and windows, and also heat build-up in upper floors of buildings (chimney effect). Once you have detected the air leaks, seal them with appropriate materials and techniques such as weather-stripping on doors, sealing and caulking on windows, and proper insulation distribution in walls, ceilings, and roofing. If your building is equipped with revolving doors, you should encourage their use to reduce drafts and conditioned-air loss.

Conducting a testing, adjusting, and balancing (TAB) analysis of building systems involves investigating the current state of the system and making adjustments to run it close to its original design specifications. Since occupancy levels and space utilization of a building may change dramatically over time, the TAB process can improve occupant comfort and save energy costs by increasing the efficiency of the system. For a TAB analysis of a typical HVAC system, you should investigate air and water system flow rates, heating and cooling systems' delivery temperatures, positions and functioning of flow control devices for air and water delivery systems, control settings and operation, and fan and pump speeds and pressures. Air delivery and water system items to be checked include outside- and mixed-air dampers and coil-mixing valves.

Pneumatic control systems, which are the "blood stream" for many larger HVAC systems, also require maintenance for the

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The Bulletin is distributed on the first Monday of the month to more than 6,000 ENERGY STAR Buildings and Green Lights participants and friends.

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subscribe energystar your first name your last name

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If you have questions, you may e-mail Christie Smith, *Bulletin* Editor, at: smith.christie@epamail.epa.gov or call the toll-free Hotline.

controller to properly regulate the position of the valve or damper operator. An annual check of the compressors for main control air can prevent the main-air lines from becoming contaminated with water or oil. A refrigerated air drier can remove water from the air supply by cooling the compressed air as it leaves the receiver tank, thereby condensing the moisture and depositing it into a drain. High-efficiency filters (such as coalescing air filters) can remove oil from the main-air supply. Main and branch air lines should also be checked for leaks or blockages, which typically occur at or between sensing elements (thermostats, etc.) and control devices (valve or damper actuators). Such leaks or blockages in the lines create losses in pressure that affect the overall system operation by providing incorrect pressure signals to the controlling devices, and may even render a control device inactive. Calibrating the control devices and elements approximately every four months will promote the system's optimal performance.

Finally, ensure that all heat transfer surfaces and filters are clean. Dirty surfaces reduce heat transfer, increase pressure loss, and increase energy use. Take the following measures to keep surfaces and filters clear: 1) Clean the airside of heating and cooling coils, whether in an air handler or in a rooftop unit, to reduce dirt and deposit build-up. 2) Check for and clean dust build-up in baseboard-heating systems. 3) Clean and replace, as necessary, filters for both airside and waterside systems. 4) Avoid covering or blocking terminal fan-coil units and baseboards. Besides creating a fire hazard (in the case of radiators), blocking the units prevents proper air circulation and renders heating and cooling inefficient.

A building maintenance program can be a relatively inexpensive, yet profitable part of your building operation. The ENERGY STAR Buildings upgrade strategy integrates building tune-ups as a part of a comprehensive approach to overall building efficiency improvements. To learn more about other building tune-up measures and how they fit in your upgrade strategy, check out the ENERGY STAR Buildings Upgrade Manual on the Web at: www.epa.gov/appdstar/buildings/manual/index.